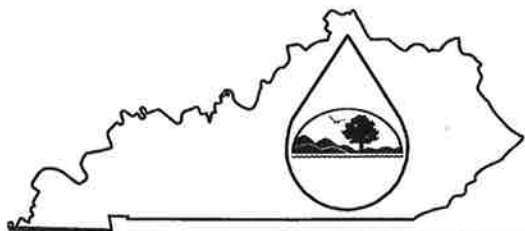


# KPDES FORM HQAA



## Kentucky Pollutant Discharge Elimination System (KPDES)

### High Quality Water Alternative Analysis

The Antidegradation Implementation Procedures outlined in 401 KAR 5:030, Section 1(3)(b)5 allows an applicant who does not accept the effluent limitations required by subparagraphs 2 and 3 of 5:030, Section 1(2)(b) to demonstrate to the satisfaction of the Environmental and Public Protection Cabinet that no technologically or economically feasible alternatives exist and that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the water is located. The approval of a POTW's regional facility plan pursuant to 401 KRS 5:006 shall demonstrate compliance with the alternatives analysis and socioeconomic demonstration for a regional facility. This demonstration shall also include this completed form and copies of any engineering reports, economic feasibility studies, or other supporting documentation

#### I. Permit Information

Facility Name:	Mountainside Coal , Inc.	KPDES NO.:	
Address:	7692 US Hwy 25W South11016 Highway 92 East	County:	Whitley
City, State, Zip Code:	Williamsburg, KY 40769	Receiving Water Name:	Doolin Br., Limestone Br., Poplar Creek

#### II. Alternatives Analysis

1. Has discharge to other treatment works been investigated? Yes ☒ No ☐  
(If yes, then indicate which treatment works were considered and the reasons why that discharge to these works is not feasible.)  
**No other treatment works are available at this proposed mine site. See attachment 11.1 for more cost analysis.**

2. Have other discharge locations been evaluated? Yes ☒ No ☐  
(If yes, then indicate what other discharge locations have been evaluated and the reasons why these locations are not feasible.)  
**The proposed silt pond are located on the bench and not in the streams. By placing ponds on the bench allows for les disturbance and is more feasible than placing off bench in hollows where more disturbance would be needed. The ponds are engineered to intercept all drainage in the affected area to allow for settlement to settle out thus improving water quality before entering streams. No other method of pond placement would be feasible or better than the one chosen. See attachment 11.2 for more cost analysis.**



## II. Alternatives Analysis - continued

3. Has water reuse or recycle been investigated as an alternative to discharge?  
(If yes, then provide the reasons why it is not a feasible alternative)

Yes

☒  
☒

No

☐

**Pond water will be used for dust suppression as needed for the coal haul road and mine work area. Water will also be used for hydro seeding the reclaimed areas. See attachment 11.3 for more cost analysis.**

4. Have alternative process or treatment options been evaluated?  
(If yes, then indicate what process or treatment options have been evaluated and provide the reasons they were not feasible.)

Yes

☒

No

☐

**Use of silt fences and silt traps are alternate treatment measures for small surface disturbances**

**such as portions of this mine site. A portion of the mine management are will be outside the Sub-watershed of the silt pond with silt control by such alternate methods. Using swimming pool filters would not be feasible as the filters would have to have generators for power. There are no electric lines in the area of the silt structures and the generators would need diesel or gas to run. The cost of fuel and traveling back and forth to refuel the generators would do more damage to reclamation and seeded areas. This would not be a feasible solution and would take a large filter system to handle the load during heavy rains. See attachment 11.4 for more cost analysis and discussion.**



## II. Alternatives Analysis - continued

- |  |            |                                     |
|--|------------|-------------------------------------|
|  | <u>Yes</u> | <u>No</u>                           |
| 5. Have on-site or subsurface disposal options been evaluated?<br>(If yes, then indicate the reasons they were not feasible.)<br><b>No other disposal options are available at this site. See attachment 11.5 for more detailed cost analysis.</b> |            | <input checked="" type="checkbox"/> |

- |   |                                     |                          |
|---|-------------------------------------|--------------------------|
|   | <u>Yes</u>                          | <u>No</u>                |
| 6. Have any other alternatives to lowering water quality been evaluated?<br>(If yes, then describe those alternatives evaluated and provide the reasons why these alternatives were not feasible.)<br><b>The only option to using sediment pond (s) and point source discharge would be to collect all wastewater generated by the surface and auger mining operation, and piping or hauling the water to a waste water treatment facility. This process would be cost prohibitive. See attachment 11.6 for more cost analysis.</b> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

### **III. Socioeconomic Demonstration**

1. State the positive and beneficial effects of this facility on the existing environment or a public health problem.

**The proposed surface disturbance for deep mine face-up will include re-disturbance and reclamation of previously mined and logged lands. This facility should improve surface water discharge from this site. See attachment 111.1 for demonstration.**

2. Describe this facility's effect on the employment of the area

**This facility (deep mine) will have positive effect on the employment of the area. Coal mining is one of the primary industries in this part of Southeast Kentucky. See attachment 111.2 for more discussion.**

3. Describe how this facility will increase or avoid the decrease of area employment.

**This facility will increase employment or avoid the decrease of area employment by extending the permitted coal reserves of Mountainside Coal Company. See attachment 111.3 for more analysis.**

4. Describe the industrial or commercial benefits to the community, including the creation of jobs, the raising of additional revenues, the creation of new or additional tax bases.

**This facility will provide new jobs or extend the life of current employment of Mountainside Coal Company.**

**The mining of coal will generate coal severance tax revenue that historically has been used to construct & maintain public roads, to provide municipal water, provide funding for schools, etc. See attachment 111.4 for more analysis.**

5. Describe any other economic or social benefits to the community.

**This facility will provide support for businesses that are dependent on coal mining in particular, e. g. trucking, equipment and parts sales and service. The mining of coal will maintain existing jobs or provide additional jobs at the coal preparation plant / tipple receiving the coal after it is mined. See attachment 111.5 for more analysis.**



### III. Socioeconomic Demonstration - continued

- |  | <u>Yes</u>                          | <u>No</u>                           |
|--|-------------------------------------|-------------------------------------|
| 6. Will this project be likely to change median household income in the county?        | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 7. Will this project likely change the market value of taxable property in the county? | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 8. Will this project increase or decrease revenues in the county? Increase             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 9. Will any public buildings be affected by this system?                               | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

10. How many households will be impacted by this project? 18

How will those households be impacted?

18 dwellings within ½ mile radius of the proposed blasting area will be offered pre-blast surveys before any mining is done. They will be able to take our survey information and use it for their own purpose. The coal will be hauled out the back way and coal haulage will not affect these dwellings. There will be some jobs for local people and by our mining the people will know we are mining and thus helping the current economy situation. Thus giving a boost in economic recovery and confidence in today's markets. There will be more positive than negative impact to the local people. After mining is done the reclaimed area will offer more species that like cleared areas and give a break from the timber slopes now present. This project will enhance the local environment by offering some alternate views and activities not now present.

- |   | <u>Yes</u>               | <u>No</u>                           |
|---|--------------------------|-------------------------------------|
| 12. Does this project replace any other methods of sewage treatment to existing facilities?<br>( if so describe how) See attachment 111.12 for more analysis. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

- |  | <u>Yes</u>                          | <u>No</u>                |
|--|-------------------------------------|--------------------------|
| 13. Does this project treat any existing sources of pollution more effectively?<br>(If so describe how.)<br><b>By constructing a permanent silt ponds, sediment control will be provided for the proposed surface contour and area re-mining operation as well as sediment control for additional existing mined lands within the affected sub-watershed. See attachment 111.13 for more analysis.</b> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |



### III. Socioeconomic Demonstration - continued

- |   | <u>Yes</u>                          | <u>No</u>                |
|---|-------------------------------------|--------------------------|
| 14. Does this project eliminate any other sources of discharge or pollutants?<br>(If so describe how.) See attachment 111.14 for more analysis. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

15. How will the increase in production levels positively affect the socioeconomic condition of the area?

**The proposed mine will not increase coal production, and put more money into the local economy. See attachment 111.15 for more analysis.**

16. How will the increase in operational efficiency positively affect the socioeconomic condition of the area?

**By operating this mine efficiently, maximum coal recovery will result and the life of the mine will be extended as projected. As long as the mine is operating, the employees will be employed thus contributing a positive affect on the socioeconomic condition of the area. See attachment 111.16 for more analysis.**

**IV Certification:** I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

<b>Name and Title:</b>	<b>Brenda Chambers Sec. Treasurer Mountainside Coal Company, Inc..</b>	<b>Telephone No.:</b>	<b>(606-786-7277)</b>
<b>Signature:</b>	<i>Brenda Chambers</i>	<b>Date:</b>	<b>May 20, 2009</b>

# Kentucky Pollutant Discharge Elimination System (KPDES)

High Quality Water Alternative Analysis

KPDES Form HQAA

Mountainside Coal Company, Inc. DNR Permit #918-0412

## II. Alternative Analysis.

### Attachment II.1. Discharge to Other Treatment Facilities.

The nearest municipal water treatment plant is located at Williamsburg, KY, approximately 19 miles from the proposed surface mine site. The water treatment plant is designed for sewage treatment, not removal of sediment. In order to utilize this existing facility, major plant reconstruction would be necessary to handle this type of wastewater. Cost for redesign, permitting, expansion and reconstruction of this existing water treatment facility would be well in excess of \$1.0M, and be approved by a multitude of governing bodies and regulatory agencies. Transportation of the wastewater, by either pipeline or trucking, would pose additional prohibitive costs.

Construction costs of a wastewater pipeline alone are estimated at \$18.00 per foot (\$1.7M). Additional expenses for easements and right of way acquisition, construction of several pumping stations, environmental impact studies, state and local government permits, as well as operating and maintenance costs, would be in excess of several million additional dollars. Due to these costs piping wastewater to an existing water treatment plant would not be feasible.

Trucking waste water to a municipal water treatment plant is also unfeasible. Trucking capacity would need to be available for the potential ten year, 24-hour storm event. The run-off from the mine site was determined by a SEDCAD 4 watershed analysis to be 0.99 acre-ft of water. This equates to 322,614 gallons of waste water in the 24-hour storm event. Assuming the use of 6000 tanker truck(s) for the hauling, the trucking of this volume of water would require 54 tanker truck loads to remove this volume of water in a 24-hour period. The nearest waste water treatment facility is approximately 19 miles from this facility. It is estimated that the time to pump into the tanker, roundtrip haul and unloading time at the wastewater plant is at a minimum of 4 hours. Therefore, hauling for 24 hours continuously 6 truck loads of water could be transported to the wastewater plant. In order to transport the entire 322,614 gallons, 9 trucks hauling continuously for 24-hours would be needed. Since the need for this type of waste water disposal would be totally dependent of rainfall events and contract

haulers could not be depend upon on a moments notice, the operator and/or permittee would required to purchase the nine tanker trucks and employ a total of 18 truck drivers (two 12-hour shift). The total cost of purchasing the nine tanker trucks, estimated at \$50,000.00 per (used – fair condition) truck, for a total of \$450,000.00.

Since long term weather forecasts for 10-year storm events are not possible, and the rural area of Whitley County, Kentucky does not have a sufficient pool of unemployed qualified truck drivers available on an emergency basis, the eighteen (18) truck drivers would have to be hired on a permanent basis. The average wage, benefits, workers compensation, and payroll taxes for a full-time truck driver is estimated at \$1,250.00 per week. The total annual cost of maintaining this standby work force would be 18 truck drivers x \$1,250.00 per week x 52 weeks/year = \$1,170,000.00.

Average maintenance and insurance expenses for the nine tanker trucks is estimated at \$1,200.00 per month x 9 trucks x 12 months per year = \$129,600.00.

The total average rainfall for the past thirty years in Knox County is 48.22 inches per year. This amount of rainfall will produce up to 10.7 acre-feet or 3,491,396 gallons of waste water per year. To haul this amount of water to a wastewater treatment plant would require 582 tanker truck loads x 38 miles round trip to the Williamsburg Water Treatment Plant for a total of 20,952 hauling miles. Estimated fuel cost is based on 8 miles per gallon and \$2.75 per gallon for diesel fuel. Total fuel

expense is 20,952 miles / 8 miles per gallon x \$2.75 = \$7,202 per year. The grand total hauling expense for transporting the waste water is \$1,306,802.

Use of existing sediment ponds at other coal mines or other coal related facilities was also considered but determined not feasible. Mountainside Coal Company, Inc. currently is utilizing several sediment ponds at three mine sites. The silt ponds were evaluated to determine if discharge from this facility could be transported to any of these facilities for discharge. More than one of the existing ponds could technically handle the additional sediment load, however, as with transporting the water to the municipal water plant, piping and/or trucking expenses would be prohibitive.

#### Attachment II.2. Use of Other Discharge Locations.

At present there are two active coal mines discharging into Poplar Creek, there is no other commercial or industrial related wastewater discharge sites in this watershed. There are several similar watersheds to the north and south that are also perennial tributaries of Poplar Creek. These streams as well as the receiving stream (Polar Creek) are not listed as "impaired" waters according to the KY DOW published report: "Draft 2006 Integrated Report to Congress on the Condition of Water Resources. Volume II. 303(d) List of Surface Waters". Therefore, there would be no benefit to transport and discharge waste water into the nearby streams.

Furthermore, these alternate discharge locations were evaluated but deemed impractical and disqualified due to various issues including right of entry, existing land use, accessibility and topography. Even if right of entry and construction of a pipeline where made legally possible, the adjoining watersheds are separated from the surface mine area by topographic ridges of more than six hundred feet. Transportation by pipeline with pumping station would entail costs of at least \$500,000.00, with no environmental benefit.

#### Attachment II.3. Water Reuse or Recycle.

Wastewater from this project will be used for on-site dust suppression and for irrigation of reclaimed areas, but only in areas that lie within the sub-watershed of the silt pond. Based on operating the mine five days a week and fifty weeks per year, the mining operation will use 625,000 gallons per year for dust suppression, which is approximately 18% of the waste water to be generated. There are no other facilities on site (such as preparation plant) that will require a raw water source.

#### Attachment II.4. Alternate Process or Treatment Options.

As an alternative treatment option, sand filtration was evaluated but deemed not applicable. Sand filtration is used primarily as a pre-treatment to remove microbial contaminates, not particulate matter and normally designed for smaller drainage areas.

Use of silt fences and straw bales silt checks are proposed for three small (<0.3 acre each) mine management areas. However, alternate sediment control as per BMP's for the remaining surface mine and mine management area was determined to be inadequate due to the elevation, grade of the area, and drainage area size, as well as the regulatory requirements of 405 KAR 18:090.

Construction of a wastewater "package plant" was also considered and rejected as a feasible option for this facility. There are currently not any wastewater plants designed and operated primarily for sediment (settable solids). The design for such a plant would be difficult because the wastewater flow is extremely variable, dependent entirely on the occurrence(s) of rainfall and run-off. Due to the unique nature of such a plant, it is estimated that the design and construction costs of a package plant capable of handling up to 350,000 GPD to be five million dollars. Operation and maintenance of such a wastewater plant would require at least one full-time employee and costs associated with operation. After mining operations are completed, the wastewater plant would still need to be operated for a minimum of two years, until revegetation and a Phase II bond release is obtained. Annual operation and maintenance cost for such a wastewater treatment system is estimated at \$150,000 throughout the mining and reclamation operation. Once the phase II bond is released, the plant will need to be disassembled and removed from the site, at an estimated cost of \$50,000. Total cost of treating the wastewater with



an on-site package plant is at least six million dollars.

#### Attachment II.5. On-Site or Subsurface Disposal Options

The installation of a sanitary septic system, i.e., septic tank with drain field was evaluated but is not an applicable option. Building a system large enough to handle the volume of water would be impractical. The absorption field area needed to handle the storm event flow of 350,000 GPD is based on a best case percolation rate of 1 – 5 inches per minute with an application rate of 1.2 gallon/day/square foot for a total trench surface area of 291,667 square feet. Drainage trenches of two feet wide separated by four feet of undisturbed soil would need to be constructed for a total surface area of the absorption field at 875,000 square feet which is 20 acres in size.

This mine site is located in the southeast part of Whitley County, Kentucky with moderate to high topographic relief. The property leased for this coal mining operation has less than two acres of flat or gentle lying land which is located in the valley bottom. At this mine site the ground water table is less than four feet below the surface as was recorded in the baseline groundwater monitoring well located in the valley bottom, therefore, the application rate would most likely be much less, and thus requiring a much larger absorption field.

Septic systems are designed to degrade organic waste and biodegradable material over time by anaerobic digestion. While the source water would most likely contribute some organic material and some needed bacteria, this would be inadequate to decompose the sediment, thus the septic system would work essentially the same as a sediment structure and therefore, the absorption field will rapidly fill up with sediment and a new absorption field would need to be constructed.

Discharge into old mined out underground works in the area was deemed an unfeasible option for disposal because the old works are not legally controlled by the permittee. The abandoned underground mines in this area are all drift mines with the adits (openings) above natural drainage. Most of the old mines are inadequately mapped with uncertain outcrop barriers. Therefore, pumping water into these works could result in seepage or discharge at some other location and even a potential catastrophic blow-out could result due to the pumping of waste water into the old mine works.

#### Attachment II.6. Evaluation of Alternatives to Lowering Water Quality.

Foregoing the entire surface mining operation, as an alternate to lowering water quality, was evaluated. This action would have negative economical impacts as the 45 anticipated jobs directly related to this proposed coal mine and as many as 20 to 30

other indirectly related jobs. Revenues resulting from this mining operation would not materialize for the mine operator, mineral owner, and local, state and federal taxes would not be generated. Specifically, some of the anticipated financial benefits that would NOT be realized if this mine is not operated are approximately on a per month basis, as follows:

Royalty	\$100,000.00
Employment	\$310,000.00
Supplies	\$450,000.00
Utilities	\$ 6,000.00
Trucking	\$ 80,000.00
Taxes	\$62,000.00

Surface mining is the only feasible method to extract this seam of coal from this coal reserve area. Silt fences and straw bales checks can be used in small isolated surface disturbance areas where run-off may not flow to a sediment structure. This alternative to a silt pond is not feasible for the entire surface work area of the proposed surface mining operation, nor would it be permissible under state and federal mining regulations.

### III. Socioeconomic Demonstration.

#### Attachment III.1. Positive and Beneficial Effects on Existing Environment or a Public Health Problem

The watershed to be impacted by this proposed project area is typical of most watersheds in the Frakes, Kentucky community located in southeastern Whitley County, Kentucky. Poplar Creek has been impacted over the past several years by both coal mining and logging operations. The surface disturbance area being utilized by this proposed underground mining operation had been mined prior to the Surface Mine Control and Reclamation Act (SMCRA) which became law in 1977. The land had been left unreclaimed for the past thirty or more years. After this surface mining operation is completed, the disturbed, permitted area will be reclaimed to the SMCRA permanent program standards. This permit also proposes an Indiana bat wildlife enhancement plan, which includes establishment of vegetative species along the riparian zone of Doolin and Limestone Branch and the retention of a permanent impoundments that will provide year-round water source for the Indiana bat and other native wildlife species.

#### Attachment III.2. Facility's Effect on Employment of the Area

Some of the anticipated financial benefits to be derived from this surface mine operations are approximately as follows on a per month basis:

Royalty	\$10,000.00
Employment	\$310,000.00
Supplies	\$450,000.00
Utilities	\$ 6,000.00
Trucking	\$ 80,000.00

This alone results in approximately \$100,000.00 per month which will benefit the community and its residents.

Furthermore, the anticipated coal severance taxes and other taxes which would be paid to the Commonwealth of Kentucky and the U.S. Treasury will be approximately \$60,000.00 per month, which will result in additional funding for this community via the benefit of education, road improvement and for black lung benefits for retired coal miners.

Attachment III.3. Facility's Effect on Increase of Employment or Decrease of Unemployment of the Area

By opening this mine, this facility will decrease the area's unemployment. This is significant for Whitley County due to the fact that the population is small and the

mining operations provide some of the best employment opportunities in the area.

Typically, as old mines become worked out, it becomes very important that new ones be permitted in order to prevent the decrease in employment and income of the area.

A decrease in mining activities in the area would produce the detrimental effect of more unemployed residents leading the area to economic distress.

#### Attachment III.4. Facility's Industrial or Commercial Benefits to the Community

By opening this surface mine and allowing the currently unemployed individuals to return to gainful employment, there will be economic benefits to the particular employees, mine owner, mineral owners and their immediate families. This mining activity will benefit the local economy and area businesses through sales at local community stores, restaurants, gas stations and various retail sales locations in Whitley County. Further, this employment would also generate funds for the Whitley County Occupational Tax base and the Kentucky State tax base and assist in restoring funds to the Kentucky Unemployment Fund tax base.

#### Attachment III.5. Facility's Economic and Social Benefits to the Community

This facility will provide support to its local community of Frakes, Kentucky retail

businesses by generating additional sales in the immediate community. Also, this facility will provide support for businesses that are dependent on coal mining in particular, i.e., trucking, equipment, parts sales and services, engineering and surveying services, etc. Furthermore, the mining of coal will maintain existing jobs or provide additional jobs at the coal preparation plant / tipple receiving the coal after it is mined.

#### Attachment III.11. Households Being Economically or Socially Impacted

By opening this mine, at least twelve (45) households will be directly affected by the return of gainful employment of the head of household. This will have a positive impact on the society in general, by maintaining intact families and reducing the stigma of unemployment and poverty. Three additional households, the two owners of the contract mining company and also the property (mineral) owner will benefit directly both financially and socially from this operation of this mine.

In addition to these fifteen (45) households, we estimate at least 10 to 30 other households will be indirectly impacted by this coal mining operation. These include part time employees and contractors, i.e., night watchman, coal haulers, mechanics, contract engineer / surveyor, as well as well as the local stores.

#### Attachment III.12. Project Affect on Existing Sewage Treatment

Municipal sewage is not available in this area. No sewage treatment exists at this mine site. Local residences have historically discharged by straight line pipes into Doolin and Limestone Branch, but in recent years have in large part installed septic systems.

#### Attachment III.13. Treatment of Existing Sources of Pollution

By constructing a permanent impoundment, sediment control will be provided for an area of pre-law (SMCRA) mining and recent clear cut logging operations that will be utilized for this mining operation and subsequently reclaimed. The construction, maintenance and retention of the sediment pond will provide treatment of the existing source of pollution.

#### Attachment III.14. Elimination of Other Sources of Discharge or Pollution

This project will involve reclaiming an old pre-law mine site and area of clear cut logging. The permanent pond will provide long term sediment control for future disturbances and discharges after the mine and reclamations activities are completed.



#### Attachment III.15. Positive Affects of Production Levels on Socioeconomic Condition

This project anticipates extracting approximately 450,000 tons over a period of five years. This will result in gross revenues of nearly \$20M, of which most will remain the local economy, which is one of the poorer counties of eastern Kentucky. Based on U.S. Department of Labor, Bureau of Labor Statistics, the average weekly wage of all industries in the U.S. is \$781.00 per week, while in Knox, Laurel and Whitley Counties, KY the average weekly wage is \$526.00, about two-thirds of the national average. The work force, company owner, and mineral owner are all local individuals, so the operation of this mine will have a net positive affect of the socioeconomic condition.

#### Attachment III.16. Positive Affects of Operational Efficiency

By operating this mine efficiently and profitably, maximum coal recovery will result and the life of the mine extended as planned. As long as the mine is operating, the workers will be employed, and thus contributing to the socioeconomic condition of their own households and the community overall. Utilizing the most efficient up to date mining techniques will insure operating conditions that protect the health and safety of the workforce.